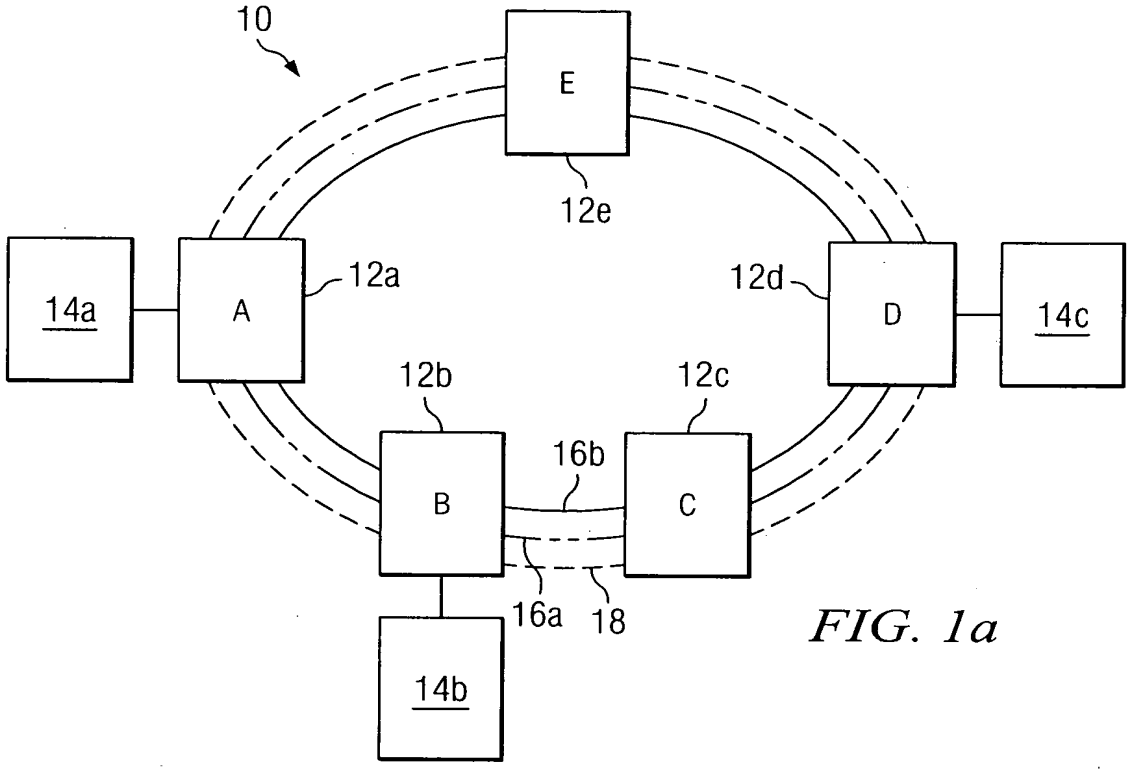

10
E
12e
14a
A
12a
12d
D
14c
12b
12c
16b
B
C
16a
18
14b

FIG. 1a

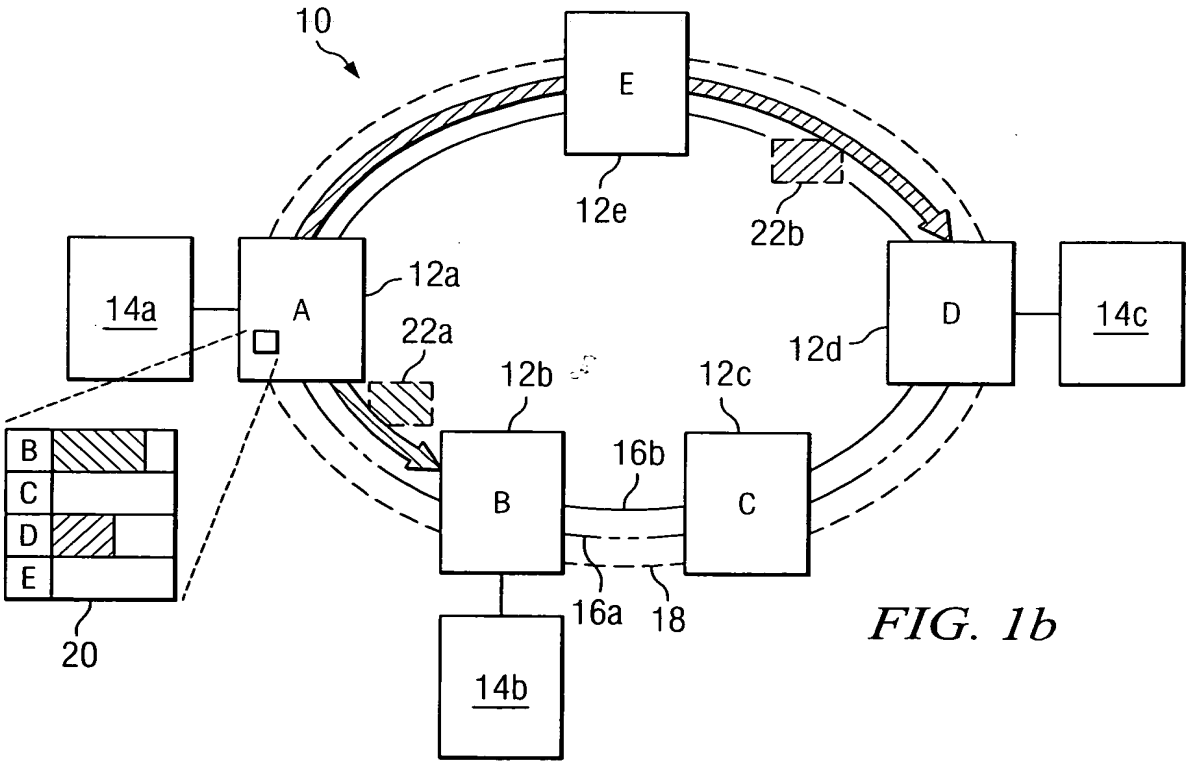

10
E
12e
22b
14a
A
12a
22a
12d
D
14c
12b
12c
16b
B
C
B
C
D
E
16a
18
20
14b

FIG. 1b

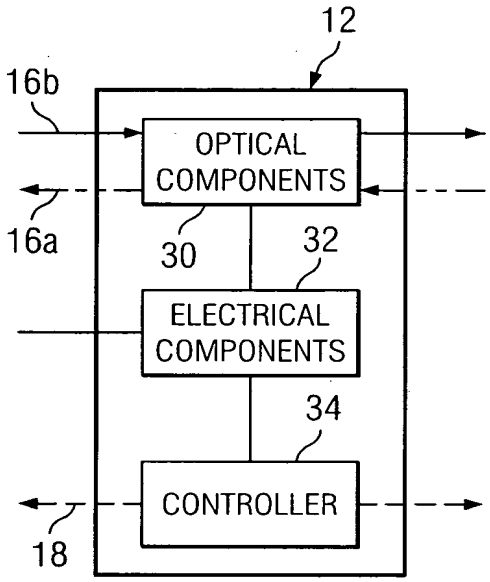


FIG. 2

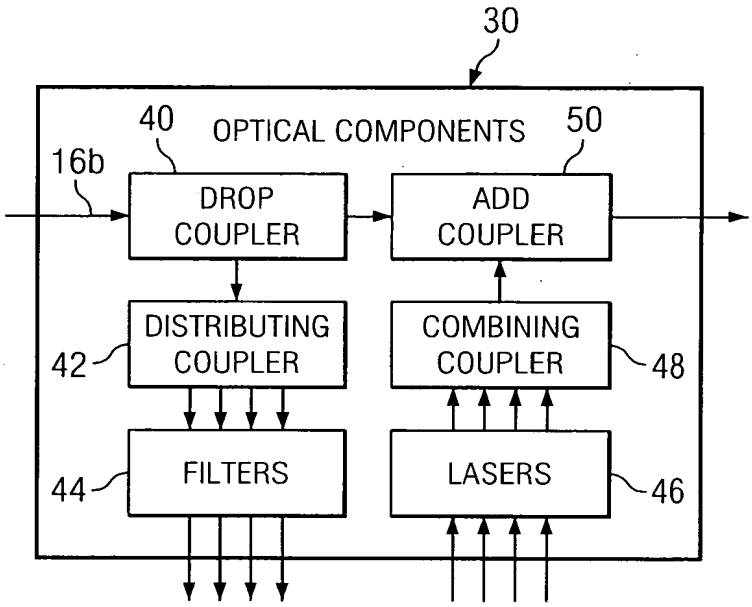


FIG. 3

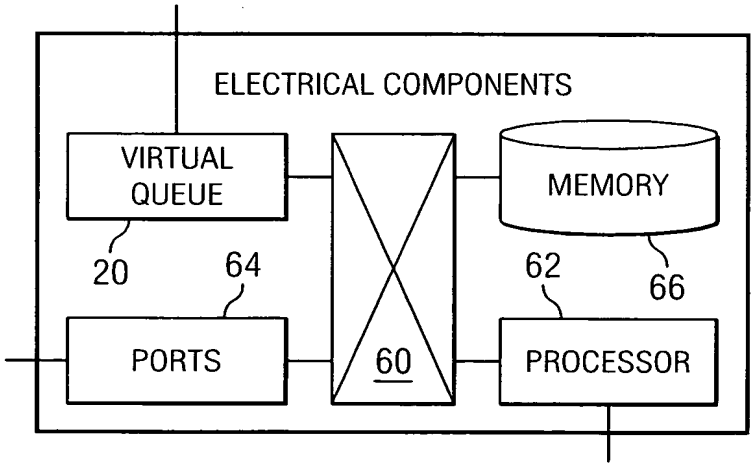


FIG. 4a

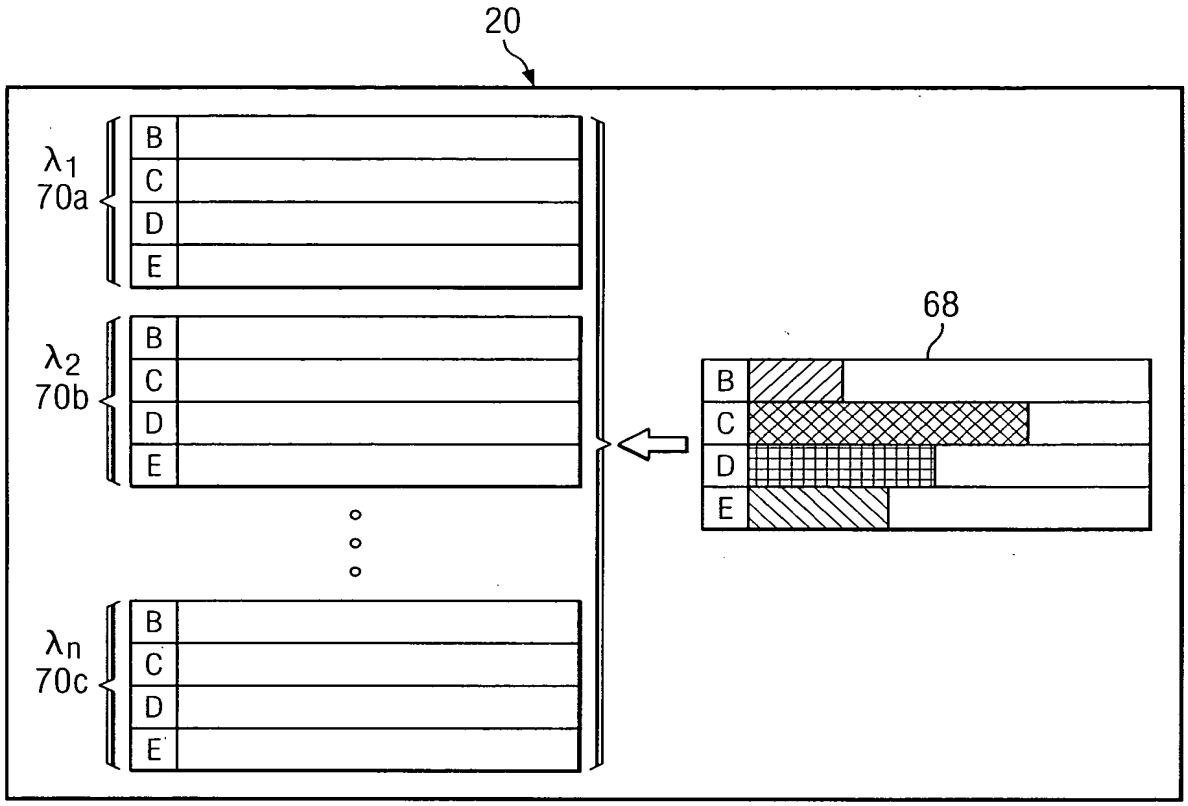

20
λ1
70a
B
C
D
E
λ2
70b
B
C
D
E
λn
70c
B
C
D
E
68
B
C
D
E

FIG. 4b

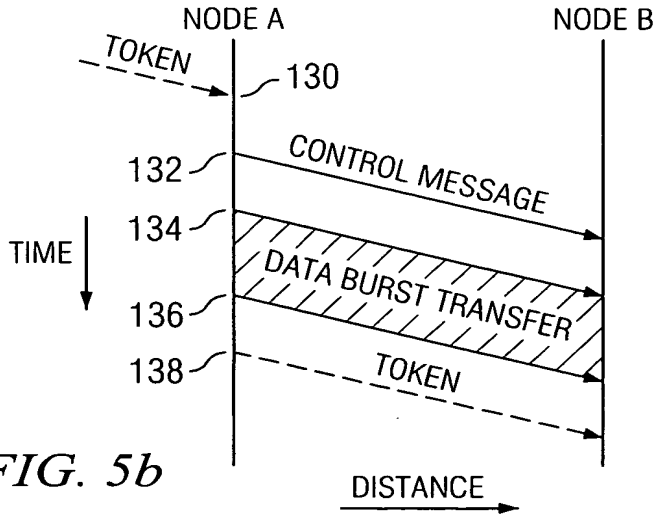

NODE A
NODE B
TOKEN
130
132
CONTROL MESSAGE
134
TIME
DATA BURST TRANSFER
136
138
TOKEN
DISTANCE

FIG. 5b

FIG. 5a

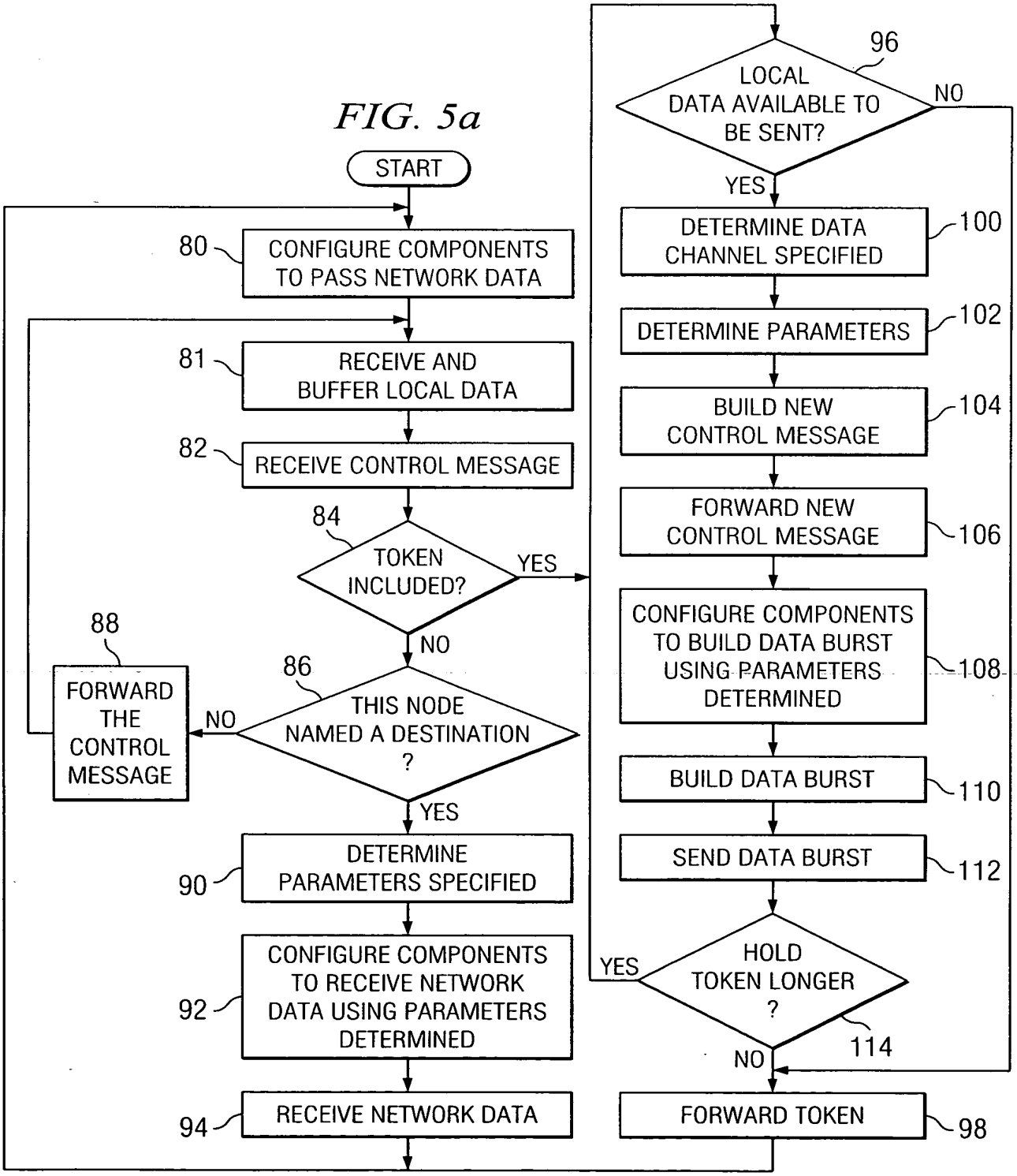

START
80
CONFIGURE COMPONENTS TO PASS NETWORK DATA
81
RECEIVE AND BUFFER LOCAL DATA
82
RECEIVE CONTROL MESSAGE
84
TOKEN INCLUDED?
YES
NO
86
THIS NODE NAMED A DESTINATION ?
NO
88
FORWARD THE CONTROL MESSAGE
YES
90
DETERMINE PARAMETERS SPECIFIED
92
CONFIGURE COMPONENTS TO RECEIVE NETWORK DATA USING PARAMETERS DETERMINED
94
RECEIVE NETWORK DATA
96
LOCAL DATA AVAILABLE TO BE SENT?
NO
YES
100
DETERMINE DATA CHANNEL SPECIFIED
102
DETERMINE PARAMETERS
104
BUILD NEW CONTROL MESSAGE
106
FORWARD NEW CONTROL MESSAGE
108
CONFIGURE COMPONENTS TO BUILD DATA BURST USING PARAMETERS DETERMINED
110
BUILD DATA BURST
112
SEND DATA BURST
YES
HOLD TOKEN LONGER ?
114
NO
FORWARD TOKEN
98

FIG. 6a-1

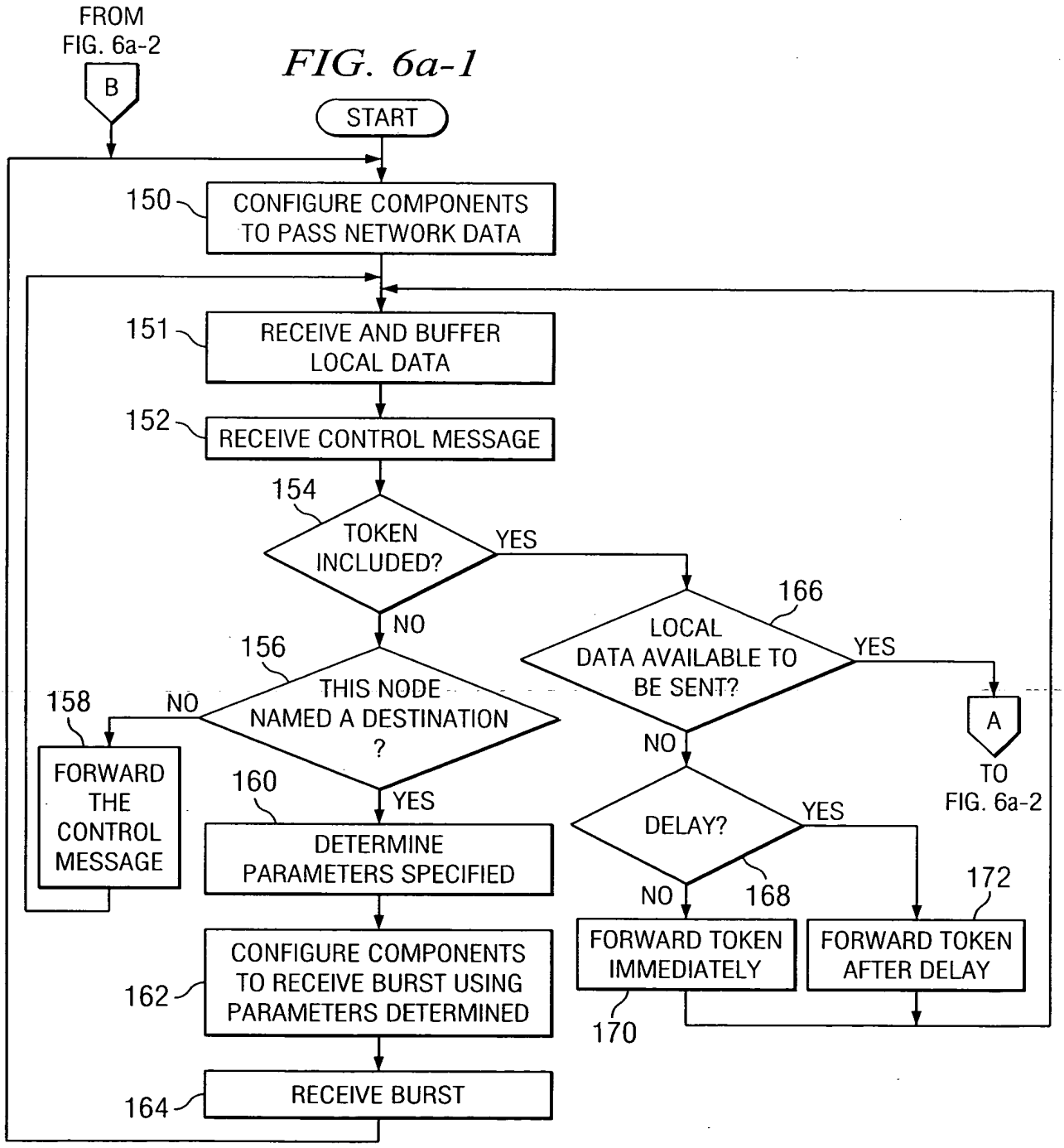
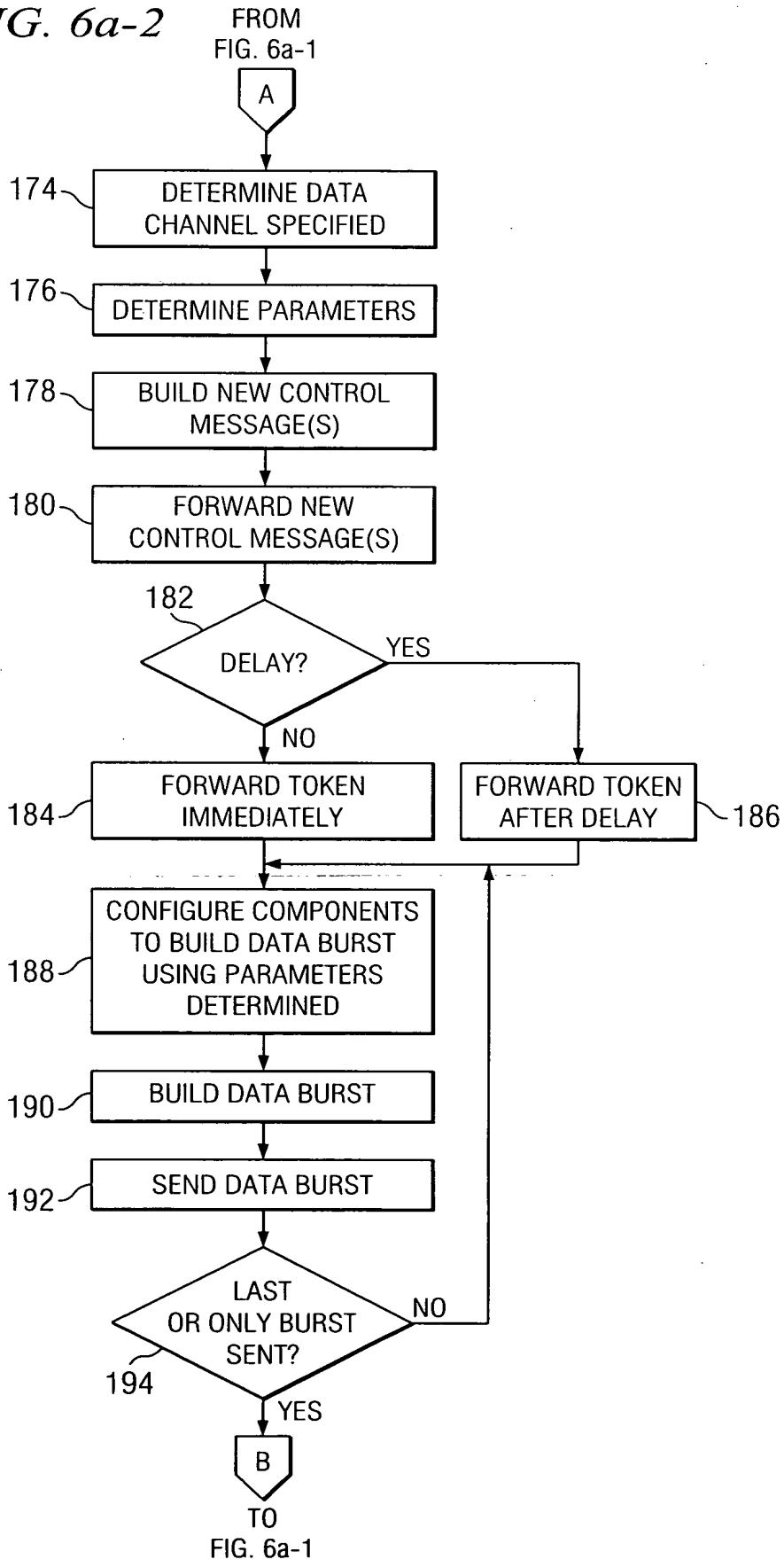

FROM FIG. 6a-2
B
START
150
CONFIGURE COMPONENTS TO PASS NETWORK DATA
151
RECEIVE AND BUFFER LOCAL DATA
152
RECEIVE CONTROL MESSAGE
154
TOKEN INCLUDED?
YES
NO
166
LOCAL DATA AVAILABLE TO BE SENT?
YES
NO
A
TO FIG. 6a-2
156
THIS NODE NAMED A DESTINATION ?
158
NO
FORWARD THE CONTROL MESSAGE
YES
160
DETERMINE PARAMETERS SPECIFIED
DELAY?
YES
NO
168
172
FORWARD TOKEN IMMEDIATELY
FORWARD TOKEN AFTER DELAY
170
CONFIGURE COMPONENTS TO RECEIVE BURST USING PARAMETERS DETERMINED
162
RECEIVE BURST
164

FIG. 6a-2


FROM FIG. 6a-1
A
174
DETERMINE DATA CHANNEL SPECIFIED
176
DETERMINE PARAMETERS
178
BUILD NEW CONTROL MESSAGE(S)
180
FORWARD NEW CONTROL MESSAGE(S)
182
DELAY?
YES
NO
184
FORWARD TOKEN IMMEDIATELY
FORWARD TOKEN AFTER DELAY
186
188
CONFIGURE COMPONENTS TO BUILD DATA BURST USING PARAMETERS DETERMINED
190
BUILD DATA BURST
192
SEND DATA BURST
LAST OR ONLY BURST SENT?
194
NO
YES
B
TO FIG. 6a-1

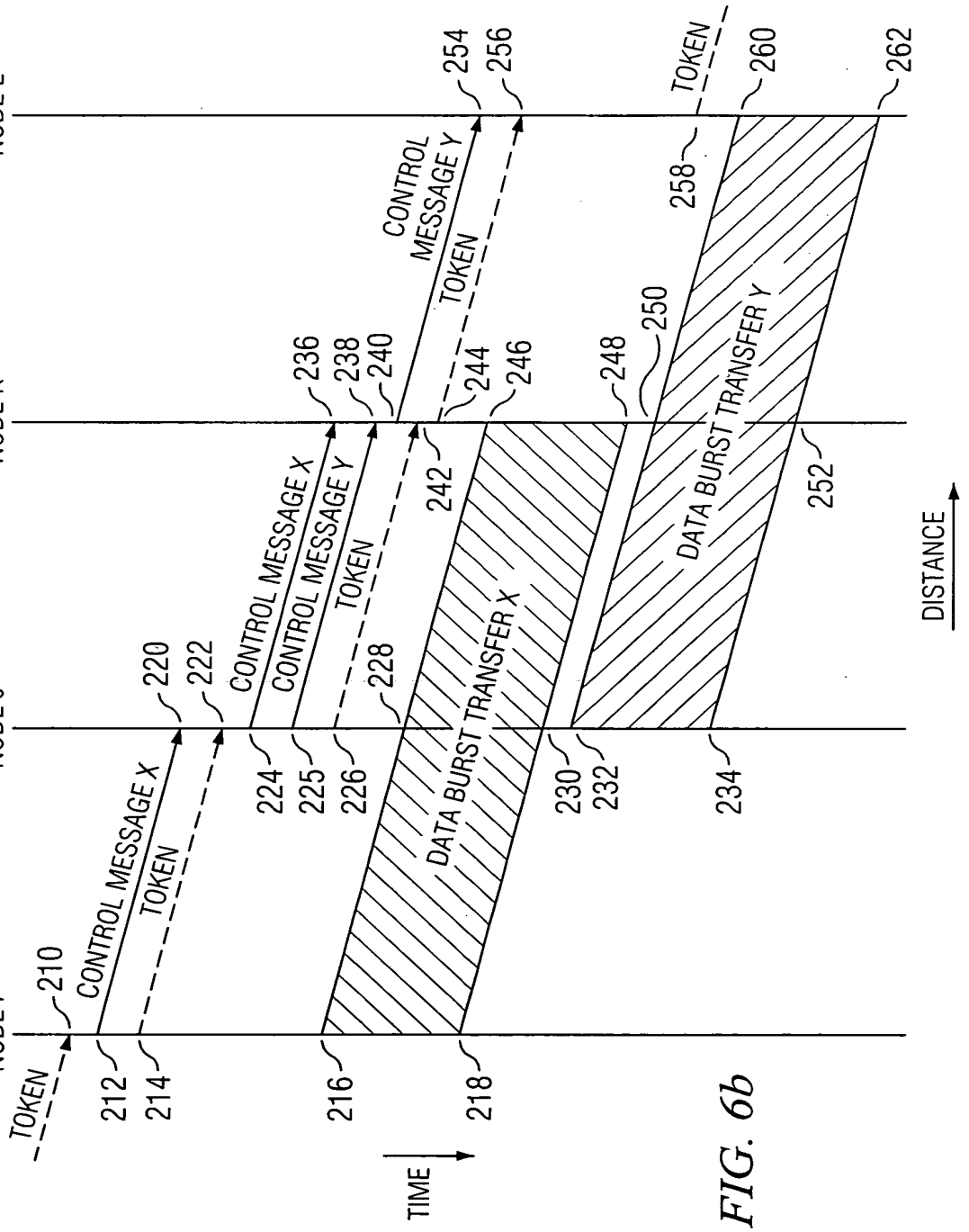

NODE L
NODE K
NODE J
NODE I
TOKEN
CONTROL MESSAGE X
CONTROL MESSAGE Y
DATA BURST TRANSFER X
DATA BURST TRANSFER Y
210
212
214
216
218
220
222
224
225
226
228
230
232
234
236
238
240
242
244
246
248
250
252
254
256
258
260
262
TIME
DISTANCE

FIG. 6b

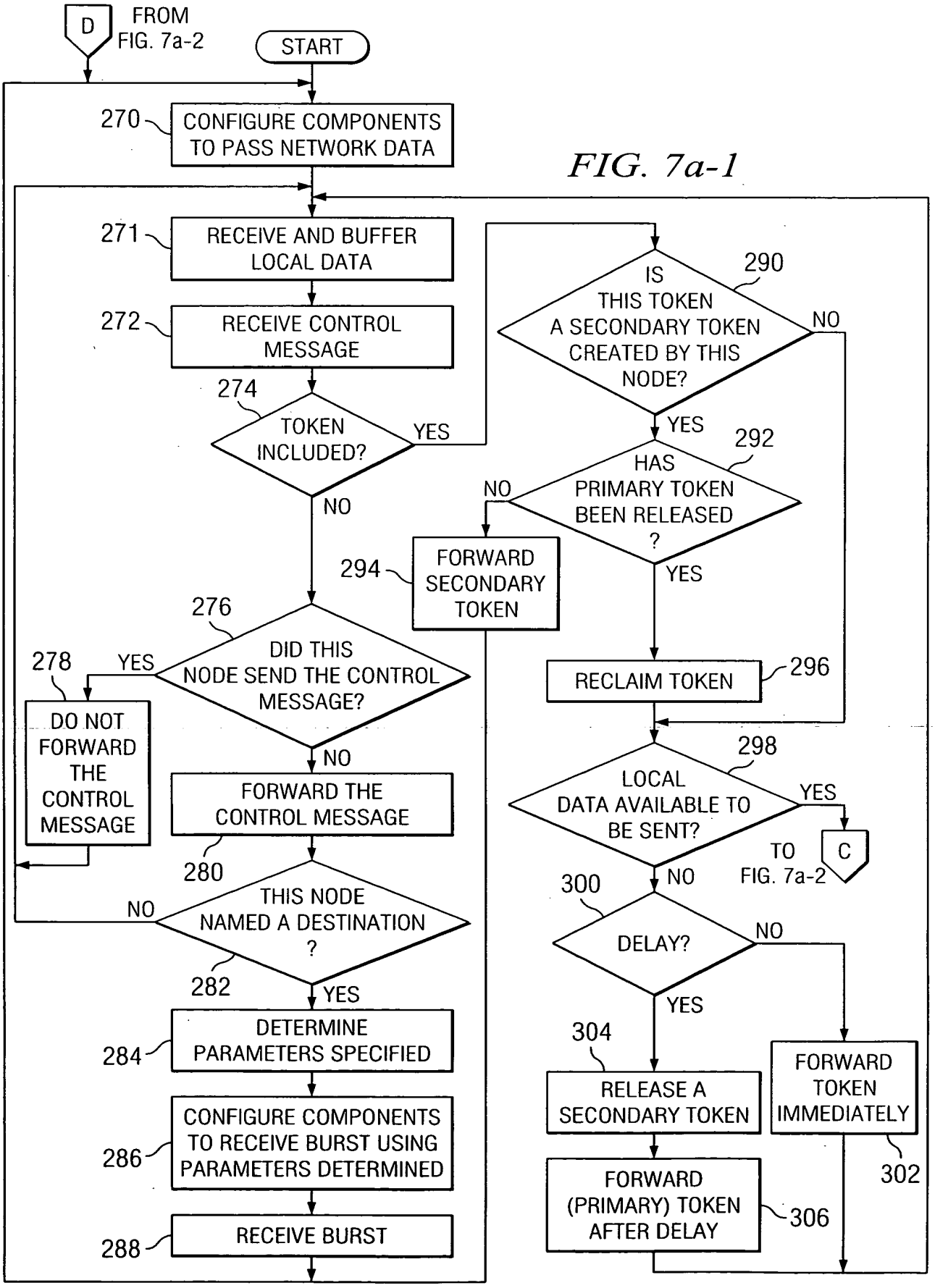
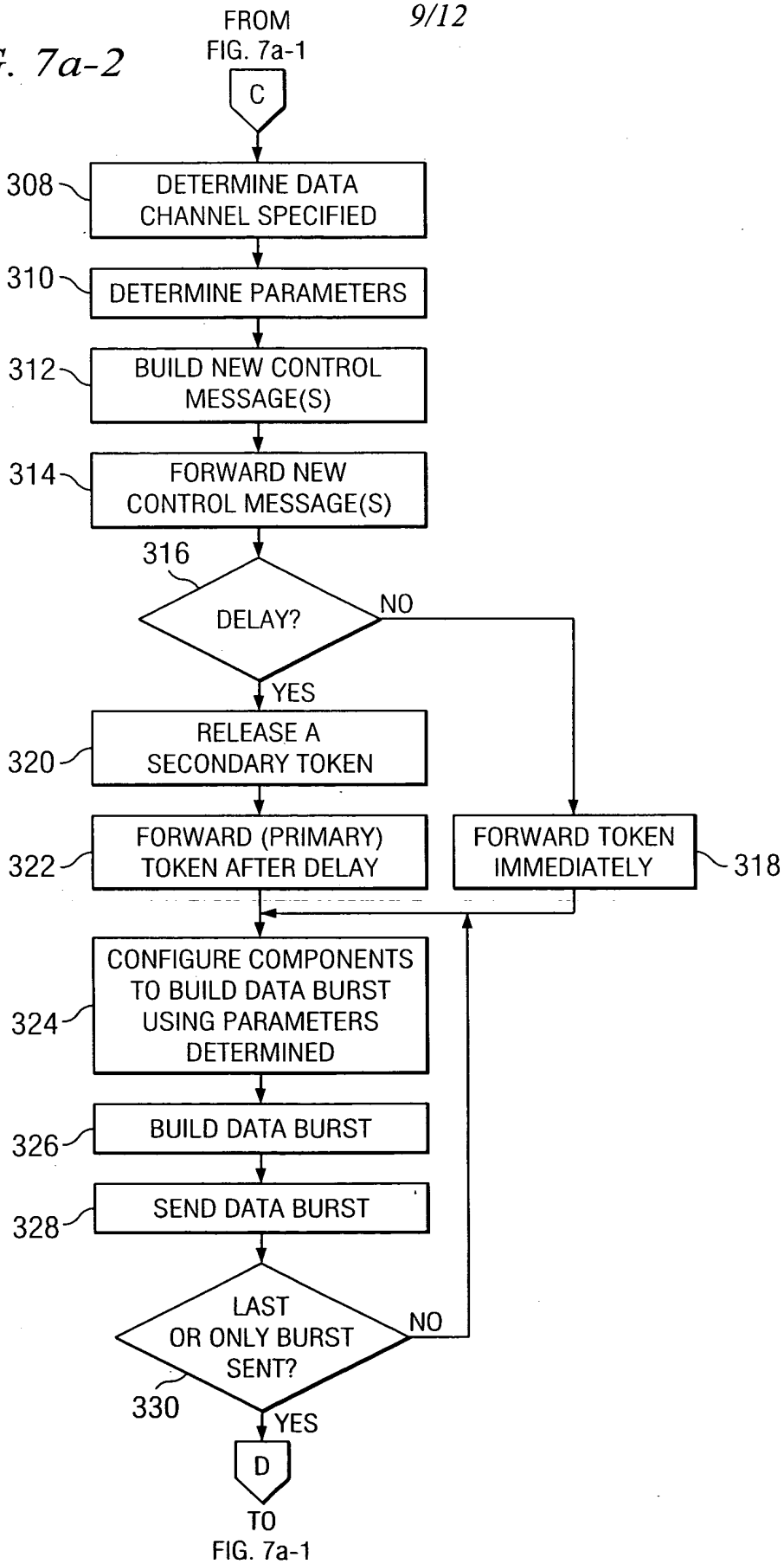

D
FROM FIG. 7a-2
START
270
CONFIGURE COMPONENTS TO PASS NETWORK DATA
271
RECEIVE AND BUFFER LOCAL DATA
272
RECEIVE CONTROL MESSAGE
274
TOKEN INCLUDED?
YES
NO
276
DID THIS NODE SEND THE CONTROL MESSAGE?
278
YES
DO NOT FORWARD THE CONTROL MESSAGE
NO
FORWARD THE CONTROL MESSAGE
280
THIS NODE NAMED A DESTINATION ?
NO
282
YES
284
DETERMINE PARAMETERS SPECIFIED
286
CONFIGURE COMPONENTS TO RECEIVE BURST USING PARAMETERS DETERMINED
288
RECEIVE BURST
290
IS THIS TOKEN A SECONDARY TOKEN CREATED BY THIS NODE?
NO
YES
292
HAS PRIMARY TOKEN BEEN RELEASED ?
NO
294
FORWARD SECONDARY TOKEN
YES
296
RECLAIM TOKEN
298
LOCAL DATA AVAILABLE TO BE SENT?
YES
TO FIG. 7a-2
C
NO
300
DELAY?
NO
YES
304
RELEASE A SECONDARY TOKEN
FORWARD (PRIMARY) TOKEN AFTER DELAY
306
FORWARD TOKEN IMMEDIATELY
302

FIG. 7a-1

FIG. 7a-2


FROM FIG. 7a-1
C
308
DETERMINE DATA CHANNEL SPECIFIED
310
DETERMINE PARAMETERS
312
BUILD NEW CONTROL MESSAGE(S)
314
FORWARD NEW CONTROL MESSAGE(S)
316
DELAY?
NO
YES
320
RELEASE A SECONDARY TOKEN
322
FORWARD (PRIMARY) TOKEN AFTER DELAY
FORWARD TOKEN IMMEDIATELY
318
324
CONFIGURE COMPONENTS TO BUILD DATA BURST USING PARAMETERS DETERMINED
326
BUILD DATA BURST
328
SEND DATA BURST
LAST OR ONLY BURST SENT?
NO
330
YES
D
TO FIG. 7a-1

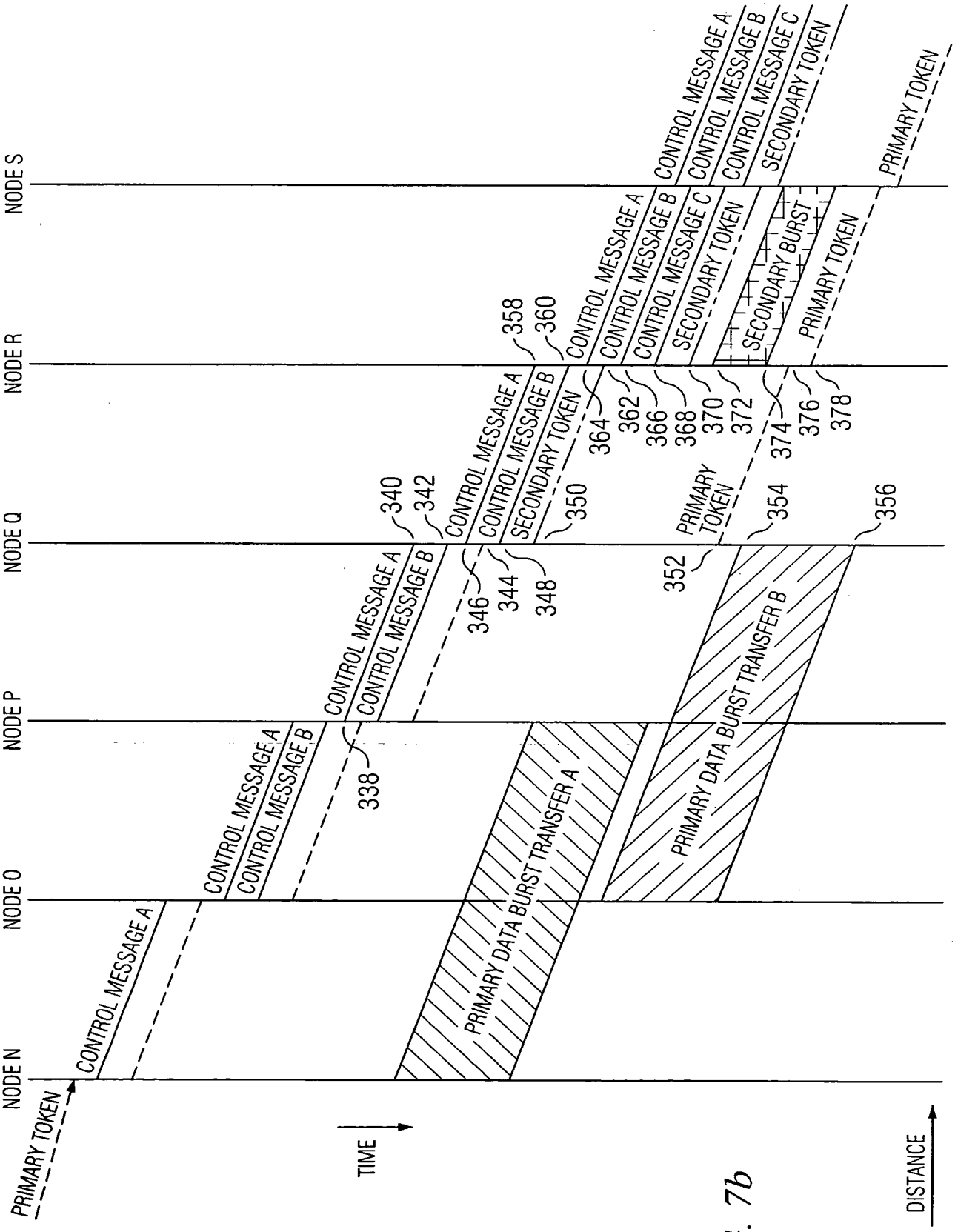
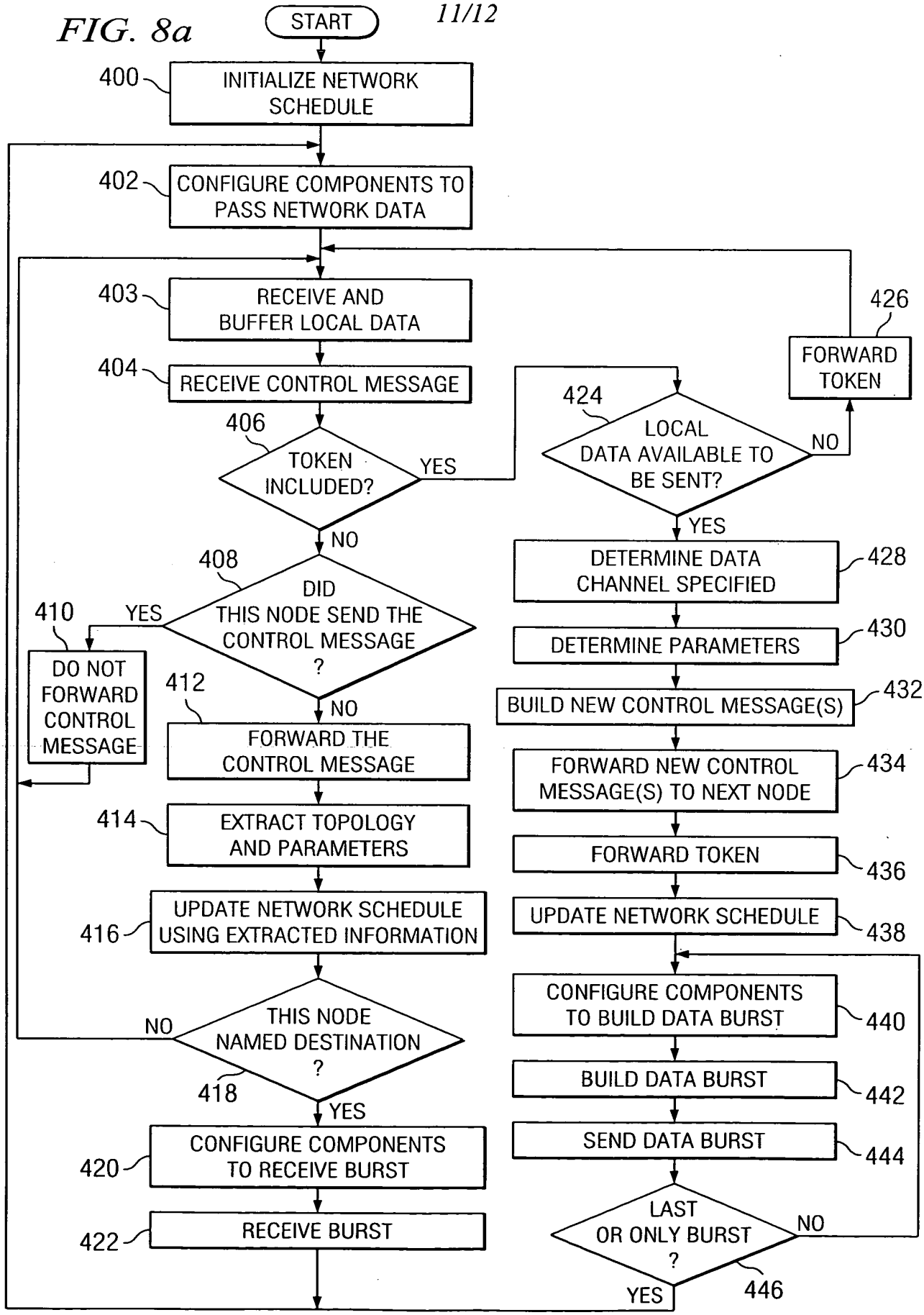

NODE S
NODE R
NODE Q
NODE P
NODE O
NODE N
PRIMARY TOKEN
CONTROL MESSAGE A
CONTROL MESSAGE B
CONTROL MESSAGE C
SECONDARY TOKEN
SECONDARY BURST
PRIMARY TOKEN
PRIMARY DATA BURST TRANSFER A
PRIMARY DATA BURST TRANSFER B
338
340
342
344
346
348
350
352
354
356
358
360
362
364
366
368
370
372
374
376
378
TIME
DISTANCE

FIG. 7b

FIG. 8a


START
400
INITIALIZE NETWORK SCHEDULE
402
CONFIGURE COMPONENTS TO PASS NETWORK DATA
403
RECEIVE AND BUFFER LOCAL DATA
404
RECEIVE CONTROL MESSAGE
406
TOKEN INCLUDED?
YES
NO
408
DID THIS NODE SEND THE CONTROL MESSAGE ?
410
YES
DO NOT FORWARD CONTROL MESSAGE
412
NO
FORWARD THE CONTROL MESSAGE
414
EXTRACT TOPOLOGY AND PARAMETERS
416
UPDATE NETWORK SCHEDULE USING EXTRACTED INFORMATION
418
THIS NODE NAMED DESTINATION ?
NO
YES
420
CONFIGURE COMPONENTS TO RECEIVE BURST
422
RECEIVE BURST
424
LOCAL DATA AVAILABLE TO BE SENT?
NO
YES
426
FORWARD TOKEN
428
DETERMINE DATA CHANNEL SPECIFIED
430
DETERMINE PARAMETERS
432
BUILD NEW CONTROL MESSAGE(S)
434
FORWARD NEW CONTROL MESSAGE(S) TO NEXT NODE
436
FORWARD TOKEN
438
UPDATE NETWORK SCHEDULE
440
CONFIGURE COMPONENTS TO BUILD DATA BURST
442
BUILD DATA BURST
444
SEND DATA BURST
446
LAST OR ONLY BURST ?
NO
YES

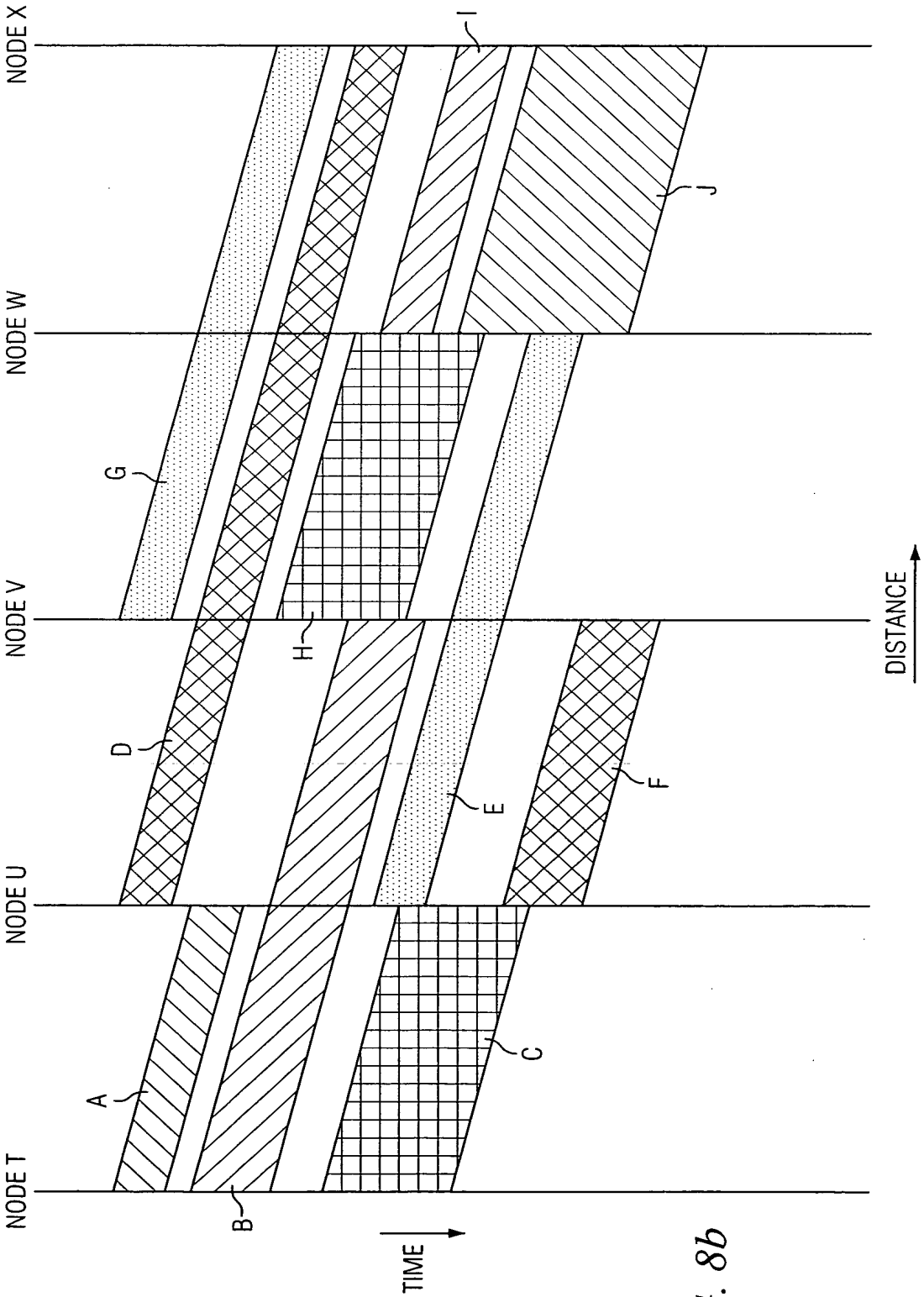


FIG. 8b